

# PHI SIGMA NEWS

The Official Phi Sigma Newsletter

By Mackenzie Seymour



## 8<sup>th</sup> Annual Weigel Symposium



### Coping with stress: from mechanisms to evolutionary consequences

From a close encounter with a predator to a bout of severe weather, brief stressors are common in nature. Responding appropriately to these challenges can be crucial for survival. Yet why do individuals experiencing similar conditions often respond to challenges in markedly different ways? Why are some populations and species more stress resilient than others? Glucocorticoid hormones are central mediators of behavior in vertebrates, particularly during major challenges. Research in my lab, using free-living tree swallows (*Tachycineta bicolor*) as a model species, is showing how consistent and heritable differences in glucocorticoid regulation influence how individuals cope with challenges, and the fitness effects of stressors. Like many temperate organisms, tree swallows are exposed to increasingly variable environments as a result of climate change. Ongoing experimental work, coupled with data from our long-term (nearly 40-year) study, is showing that small changes in developmental temperature can have lifelong effects, altering the sensitivity to future challenges. Depending on the future environment, this mechanism could reduce the impact of climate variability on populations, or impose an additional, hidden cost of climate change.

Check out Dr. Vitousek's website [here](#)

### Important Dates

**January 16<sup>th</sup> - January 30<sup>th</sup>**

Membership application period

**February 2<sup>nd</sup> - March 2<sup>nd</sup>**

Weigel Grant and Summer Research Fellowship application period

**February 11<sup>th</sup> - March 16<sup>th</sup>**

Phi Sigma Symposium abstract submission period

**March 19<sup>th</sup>**

Weigel Seminar

**April 17<sup>th</sup>**

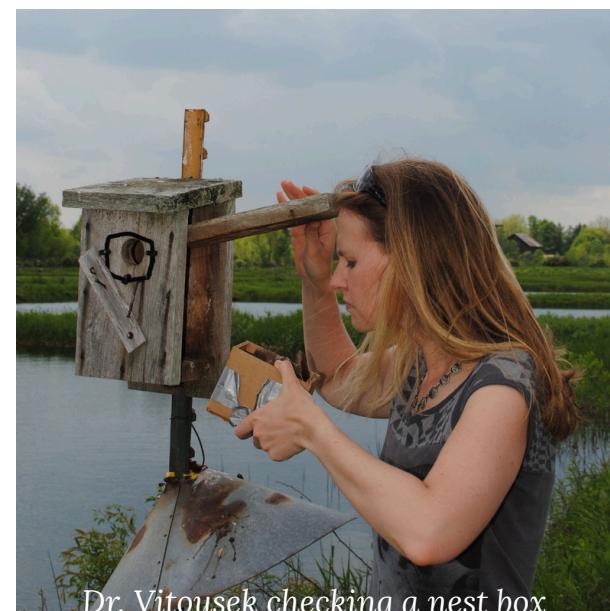
Phi Sigma Symposium

**April 20<sup>th</sup> - April 24<sup>th</sup>**

Phi Sigma Board nominations & election

**May 1<sup>st</sup>**

Spring Banquet



Dr. Vitousek checking a nest box

# 26<sup>th</sup> Annual Research Symposium

April 17<sup>th</sup>, 2026

Dr. Mike Boots

Chair and Trevor J. McMinn Endowed Professor  
Department of Integrative Biology  
UC Berkeley

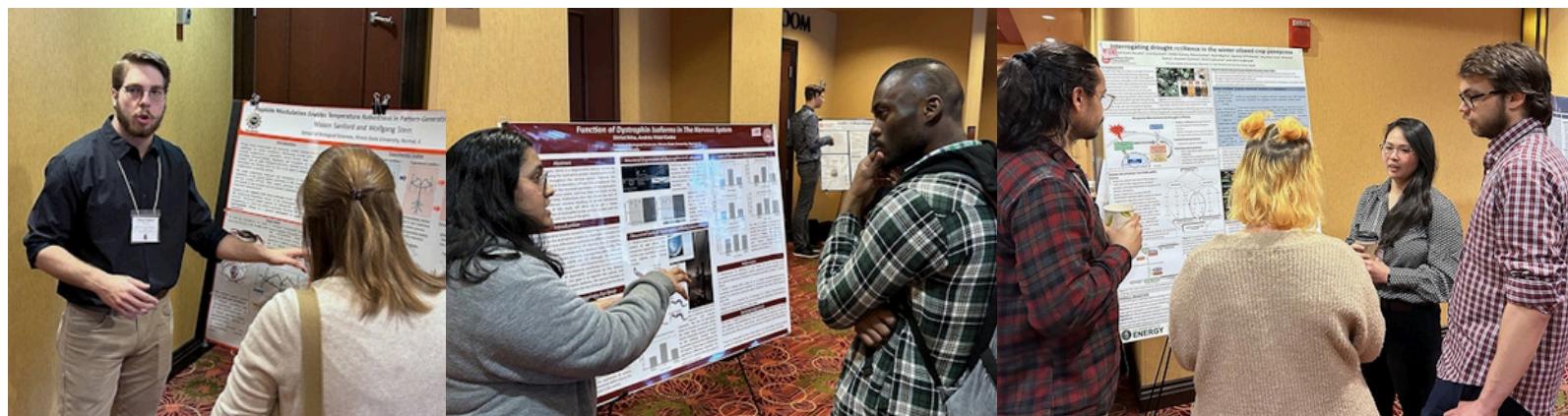


## **The Tragedies of Tolerance: Honeybee Pathogens and the Emergence of Zoonotic Viruses**

Hosts employ a diverse array of mechanisms to defend against infectious agents, ranging from behavioral avoidance to complex adaptive immunity. A critical distinction exists between resistance—mechanisms that reduce pathogen load by hindering growth, clearing infection or avoiding it in the first place—and tolerance, which mitigates the damage caused by infection without impacting pathogen fitness. While both strategies enhance host fitness, only resistance exerts a negative selective pressure on the pathogen. This dichotomy has profound consequences for the epidemiological, ecological, and evolutionary dynamics of host-pathogen systems, serving as a primary example of how eco-evolutionary feedbacks generate and maintain biological diversity. In this talk, I introduce the theoretical foundations of tolerance and discuss its practical relevance within two important contexts: honeybee-pathogen interactions and the emergence of zoonotic viruses in human populations.

Check out Dr. Boots' website [here](#)

Research Symposium Locations: Wonsook Kim College of Fine Arts for posters and the State Farm Hall of Business for oral talks.



# Fall Picnic



Our annual fall picnic was a wonderful success, made even better by beautiful weather and a fantastic potluck spread. The wide variety of dishes reflected the creativity and culinary talents of everyone who participated.

The afternoon offered a perfect chance to unwind, enjoy friendly lawn games, and connect outside of the classroom and lab setting. A special thank you to Dr. Gatto for graciously hosting this event!



## Halloween Trivia Night



Thank you to everyone who joined us for an engaging evening filled with festive fun and friendly competition at Halloween Trivia Night!

The lively atmosphere, thoughtfully curated trivia, and spooky snacks made the night especially enjoyable. We truly appreciated the enthusiasm of all who attended and look forward to hosting this event again next year!



Best Costume:  
The Lorax



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# Winter Potluck



Our Winter Potluck brought everyone together for a warm and festive evening filled with great food and even better company. Thank you to all who shared their favorite dishes and helped create such a welcoming atmosphere.

The gingerbread house competition was a standout moment of the night, with teams putting their creativity on display using candy, frosting, and plenty of imagination. The impressive (and tasty) creations made the event even more memorable. Thank you to everyone who attended, and we're already looking forward to next celebration!



Congratulations to Cassie, Sylvia, Sydney, Jadyn, & Padmanav for winning the competition and receiving free tickets to the Spring Banquet!

## Mentor & Mentee Coffee Hour



The next Mentor & Mentee Coffee Hour will take place for active groups in February.

Be sure to watch your email for more information and event details!